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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/455,683	05/31/95	BELL G	ARCD:177/WIM

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EXAMINER	
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ART UNIT	**PAPER NUMBER**
1647	28

DATE MAILED: 08/10/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	08/455,683	BELL ET AL.	
	Examiner	Art Unit	
	Robert Landsman	1647	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

1)☒ Responsive to communication(s) filed on *05 June 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *47-52,59,63-67 and 81-114* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *47-52,59,63-67,83,84,86-88,90,97 and 103-114* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a)☐ All b)☐ Some * c)☐ None of the CERTIFIED copies of the priority documents have been:

1.☐ received.

2.☐ received in Application No. (Series Code / Serial Number) _____.

3.☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

15)☐ Notice of References Cited (PTO-892)
16)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
18)☐ Interview Summary (PTO-413) Paper No(s). _____.
19)☐ Notice of Informal Patent Application (PTO-152)
20)☐ Other: .

DETAILED ACTION

1. Formal Matters

A. Amendment E, filed 6/5/00, has been entered into the record.

B. Claims 47-52, 59, 63-67 and 81-114 were pending in the Application. Amendment E, which is a response to the Office Action dated 3/2/00, states, in the Status of the Claims, that claims 47-51, 53-59, 63, 65-67, 81 and 83-114 are the subject of the most current response. These claims differ from what the Examiner believes the current pending claims to be. However, in Appendix A of Amendment E, Applicants list the pending claims as they believe them to be, which correspond to those the Examiner believes. Therefore, claims 47-52, 59, 63-67 and 81-114 are currently pending in the application.

Withdrawn Claim Rejections

1. Claim Rejections - 35 USC § 112, first paragraph

A. Claims 47-51, 81 and 83-102 were rejected under 35 USC 112, first paragraph in the Action dated 8/13/99. The rejection was based on amending the preambles of claims 47, 84, 91 and 97 to recite "as defined by subsequent step (a)" and changing parts (b) of these claims to recite "said opioid receptor." Since the claims, as written, read on a method of screening for a binding substance to any opioid receptor type (e.g. mu, delta), using the method involving only kappa opioid receptor chimeras. Applicants argue that "...a process claim is necessarily limited by recitation of steps that follow the preamble" which are drawn to the kappa opioid receptor chimeras of the claim.

2. Claim Rejections - 35 USC § 102

A. The rejection of claims 47, 84, 86, 88, 90 and 97-101 under 35 USC 102(e) as being unpatentable over Evans et al. (US Patent 5,985,600) has been withdrawn because the world patent (WO 9494552) and

not the US Patent by Evans et al. teach the fragment of SEQ ID NO:11. However, due to the publication date of World patent WO9494552, this reference is not valid prior art.

3. Claim Rejections - 35 USC § 103

A. The rejections of claims 48-51 under 35 USC 103(a) as being unpatentable over Evans et al. in view of Frielle et al. has been withdrawn since the world patent (WO 9494552) and not the US Patent by Evans et al. teach the fragment of SEQ ID NO:11. However, due to the publication date of World patent WO9494552, this reference is not valid prior art.

B. The rejections of claims 59, 63-66 and 109-113 under 35 USC 103(a) as being unpatentable over Evans et al. in view of Liggett et al. has been withdrawn since the world patent (WO 9494552) and not the US Patent by Evans et al. teach the fragment of SEQ ID NO:11. However, due to the publication date of World patent WO9494552, this reference is not valid prior art.

New/Maintained Claim Rejections

1. Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

A. Claims ~~47-81~~ 47-52, 59, 63-67, 83, 84, 86, 88, 90, 97-102 and 109-114 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by a specific, substantial and credible asserted utility or a well established utility. These claims are drawn to an invention with no apparent or disclosed patentable utility. This rejection is not in conflict with the current utility guidelines. The instant application has

provided a description of a partially isolated protein. However, the instant application does not disclose the biological role of this protein or its significance.

It is clear from the instant specification that the claimed receptor is termed an "orphan receptor" in the art. Applicants refer to SEQ ID NO:11 as a partial human nucleotide sequence of a human kappa opioid receptor since the full open reading frame of the nucleotide and, therefore, the full-length mature protein encoded by this nucleic acid are not known (page 24, line 26 to page 25, line 8 of the specification). There is little doubt that, after complete characterization, this protein will probably be found to have a patentable utility. This further characterization, however, is part of the act of invention and, until it has been undertaken, Applicants' claimed invention is incomplete.

The instant situation is directly analogous to that of which was addressed in Brenner v. Manson, 148 U.S.P.Q. 689 (Sus. Ct, 1966), in which a novel compound which was structurally analogous to other compounds which were known to possess anticancer activity was alleged to be potentially useful as an antitumor agent in the absence of evidence supporting this utility. The court expressed the opinion that all

chemical compounds are "useful" to the chemical arts when this term is given its broadest interpretation. However, the court held that this broad interpretation was not the intended definition of "useful" as it appears in 35 U.S.C. 101, which required that an invention must have either an immediate obvious or fully disclosed "real-world" utility. The court held that:

> "The basic quid pro quo contemplated by the Constitution and the Congress for granting a patent monopoly is the benefit derived by the public from an invention with substantial utility," "[u]nless and until a process is refined and developed to this point - where specific benefit exists in currently available form – there is insufficient justification for permitting an applicant to engross what may prove to be a broad field," and "a patent is not a hunting license," "[i]t is not a reward for the search, but compensation for its successful conclusion."

The instant claims are drawn to a protein which has a yet undetermined function or biological significance. Applicants have disclosed that they are in possession of compounds which *bind* this receptor, however, there is no actual and specific significance which can be attributed to said protein identified in the specification. For this reason, the instant invention is incomplete. In the absence of a knowledge of the natural ligands or biological significance of this protein, there is no immediately obvious patentable use for it. To employ a protein of the instant invention in the identification of substances which bind to and/or mediate activity of the said receptor is clearly to use it as the object of further research which has been determined by the courts to be a non-patentable utility. Since the instant specification does not disclose a "real-world" use for said protein then the claimed invention is incomplete and, therefore, does not meet the requirements of 35 U.S.C. 101 as being useful.

This rejection can be overcome if Applicants amended all claims which recite SEQ ID NO:11 "comprising at least 30 contiguous bases of SEQ ID NO:11" to "consisting of 30 contiguous bases of SEQ ID NO:11.

2. Claim Rejections - 35 USC § 112, first paragraph – lack of written description

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

A. The specification is objected to and claims 47-81, 83, 84, 86, 88, 90, 97-102 and 109-114 are rejected under 35 U.S.C. 112, first paragraph, as failing to adequately teach how to use the instant invention. Specifically, since the claimed invention is not supported by a specific, substantial and credible asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

B. Claims 47, 59, 84, 97 and 109 were rejected on page 7 of the Office Action dated 3/2/00 under 35 USC 112, first paragraph since SEQ ID NO:11 is only a partial genomic sequence (see page 24, line 26 to page 25, line 8). Applicants argue that the Sequence Listing contains SEQ ID NO:11 and, therefore, shows "which groups of 30 nucleotides o[f] SEQ ID NO:1 or SEQ ID NO:11 will translate into a functional opioid polypeptide that can bind ligands. In addition, Applicants state that the three cited references, Cunningham and Wells, George et al. and Rudinger, are irrelevant and support Applicants' position. However, the specification (page 24, line 26 to page 25, line 8) states that SEQ ID NO:11 and 12 encode a partial human kappa opioid receptor and that various amino acids are still unidentified. Even though the experiments of Cunningham and Wells are towards a human growth hormone receptor, one of ordinary skill in the art would recognize that this principle would hold true for other proteins since the structure and function of proteins is based on its ability to fold into the correct 3-dimensional shape and alteration of any amino acids would potentially have an effect on this folding and, therefore, activity. In addition, though George et al. does state that "these techniques...provide extremely powerful tools for identifying *possible* relationships between biomolecules" (emphasis added) the relationships are not certain.

This rejection can be overcome if Applicants amended all claims which recite SEQ ID NO:11 "comprising at least 30 contiguous bases of SEQ ID NO:11" to "consisting of 30 contiguous bases of SEQ ID NO:11."

3. Claim Rejections - 35 USC § 112, first paragraph – scope

A. Claims 47, 48, 50, 51, 59, 63, 65-67 and 84-114 were rejected under 35 USC 112, first paragraph with regard to there being a lack of guidance and working examples showing that any portion of the kappa opioid receptor of SEQ ID NO:2 or 12 which does not contain the second extracellular loop would bind ligand. Applicants argue that "the Specification is replete with descriptions of various chimeric molecules that comprise 'at least 30 contiguous bases of SEQ ID NO:1 or 11'" and that the chimeras discussed in the specification are each working examples demonstrating the rejected claims. Furthermore, Applicants argue that the claims do not require "ligand binding" and that the claims are directed to "processes for screening a substance for its ability to interact with an opioid receptor."

Applicants also argue that the Sequence Listing contains SEQ ID NO:1 and 11 and, therefore, shows "which groups of 30 nucleotides o[f] SEQ ID NO:1 or SEQ ID NO:11 will translate into a functional opioid polypeptide that can bind ligands. Though the Sequence Listing does give the nucleotide and translated amino acid sequences, the Listing does not allow one to determine which groups of 30 nucleotides are able to bind ligand.

Therefore, based solely on the argument that the claims do not require "ligand binding" and that the claims are directed to "processes for screening a substance for its ability to interact with an opioid receptor" claims 47, 48, 50, 51 and 84-102 are clear in view of these arguments since these claims do not require "ligand binding." In addition, parts (c) of claims 47, 84, 91 and 97 limit the substance ~~which~~ with one which "interacts" and is not involved in signal transduction.

However, the following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

A. The rejection of claims 59, 63, 65-67 and 103-114 under 35 U.S.C. 112, first paragraph is maintained, because the specification, while being enabling for a process of screening for antibodies and

compounds which do not require the second extracellular loop of the human kappa opioid receptor, does not reasonably provide enablement for a process of screening for agonists or antagonists. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

In addition to the rejection of these claims for the reasons already of record on page 4-5, paragraph "L" of the Office Action dated 3/2/00 since these claims are directed toward "a process of isolating a substance with an ability to act as a specific *agonist* of a kappa opioid receptor..." without any discussion of the second extracellular loop. Applicants argue that the claims are directed toward "a process for screening a substance" and that could include, for example, antibodies. While the Examiner agrees with the Applicants in this regard, the second extracellular loop is still needed in "a process of isolating a substance with an ability to act as an agonist..." and Applicants are not enabled for any 30 nucleotides of the claimed sequences which do not contain the second extracellular loop.

4. Claim Rejections - 35 USC § 112, second paragraph

A. The rejection of claims 59, 103 and 109 under 35 USC 112, second paragraph with regard to needing to add method steps to distinguish whether the compound binding the kappa opioid receptor is an agonist or an antagonist (page 3, paragraph I of the Action dated 3/2/00) is maintained for the reasons already of record in that Action since Applicants did not address this rejection.

B. Claims 59, 63, 65-67 and 103-114 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicants claim a process for isolating a substance with an ability to act as an agonist of a kappa opioid receptor. However, the claim does not provide a method step to determine how to differentiate agonists from compounds with other effects, such as antagonists or inverse agonists.

Advisory information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Landsman whose telephone number is (703) 306-3407. The examiner can normally be reached on Monday - Friday from 8:00 AM to 5:00 PM (Eastern time) and alternate Fridays from 8:00 AM to 5:00 PM (Eastern time).

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Gary Kunz, can be reached on (703) 308-4623.

Official papers filed by fax should be directed to (703) 308-4242. Fax draft or informal communications with the examiner should be directed to (703) 308-0294.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Robert Landsman, Ph.D.
Patent Examiner
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August 07, 2000

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